

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Marc Schaepkens, et al.

Serial No.: 10/817,531

Filed: April 2, 2004

For: Organic Electronic Packages Having
Hermetically Sealed Edges and
Methods of Manufacturing Such
Packages

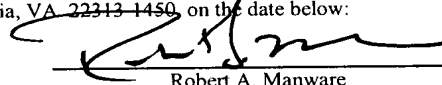
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Group Art Unit: 2815

Examiner: Chris C. Chu

Atty. Docket: 133525-1/YOD/MAN
GERD:0065

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APPEAL BRIEF PURSUANT TO 37 C.F.R. §§ 41.31 AND 41.37

This Appeal Brief is being filed in furtherance to the Notice of Appeal mailed on April 11, 2007, and received by the Patent Office on April 16, 2007, and the Notice of Panel Decision from Pre-Appeal Brief Review mailed July 19, 2007.

The Commissioner is authorized to charge the requisite fee of \$500.00, and any additional fees which may be necessary to advance prosecution of the present application, to Account No. 07-0868; Order No. 133525-1/YOD (GERD:0065).

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1. **REAL PARTY IN INTEREST**

The real party in interest is General Electric Company, Inc., the Assignee of the above-referenced application. The Assignee of the above-referenced application will be directly affected by the Board's decision in the pending appeal.

2. **RELATED APPEALS AND INTERFERENCES**

Appellants are unaware of any other appeals or interferences related to this Appeal. The undersigned is Appellant's legal representative in this Appeal.

3. **STATUS OF CLAIMS**

Claims 1-10, 47-50 are currently under final rejection and, thus, are the subject of this appeal. Claims 11-33 are withdrawn from consideration.

4. **STATUS OF AMENDMENTS**

Appellants have not submitted any amendments subsequent to the Advisory Action mailed on March 5, 2007.

5. **SUMMARY OF CLAIMED SUBJECT MATTER**

Embodiments of the present application generally relate to providing a hermetically sealed package for organic electronic devices. Application, Page 2, paragraph [0005]. In one embodiment an organic electronic package is provided, wherein the package includes a sealant implemented to couple a superstrate to a flexible substrate, providing a complete enclosure for the organic electronic device. Application, Page 7, paragraph [0024]. As used in the present specification, the "organic electronic device" includes a number of organic semiconductor layers disposed between two conductors or electrodes. Application, Page 7, paragraph [0023]. The specification describes a superstrate as referring to upper substrate of the organic package. Application, Page 7, paragraph [0025]. In one embodiment, the organic package includes an organic electronic device and a superstrate disposed proximate to the organic electronic device, wherein the superstrate is adapted to wrap around the edges of the package, thereby sealing and protecting the organic electronic device. Application, Page 9, paragraphs [0028] – [0029], Fig. 3.

The Application contains two (2) independent claims, namely, claims 1 and 47, of which are the subject of this Appeal. The subject matter of these claims is summarized below.

With regard to the aspect of the invention set forth in independent claim 1, discussions of the recited features of claim 1 can be found at least in the below cited locations of the specification and drawings. By way of example, an embodiment in accordance with the present invention relates to a package (e.g., 22). *See e.g.*, Application, paragraph [0005]; Fig. 3. The package (e.g., 22) comprises a flexible substrate (e.g., 12) comprising a polymeric transparent film. *See e.g.*, Application, paragraphs [0018]-[0019]; Fig. 3. The package (e.g., 22) further comprises an organic electronic device (e.g., 16) coupled to the transparent film. *See e.g.*, Application, paragraph [0023]; Fig. 3. The package (e.g., 22) further comprises a sealant (e.g., 18) coupled to the flexible substrate (e.g., 12) and disposed about the perimeter of the organic electronic device (e.g., 16). *See e.g.*, Application, paragraph [0024]; Fig. 3. The package (e.g., 22) further comprises a superstrate (e.g., 24) coupled directly to the sealant (e.g., 18) and disposed proximate to the organic electronic device (e.g., 16), wherein the superstrate (e.g., 24) comprises a periphery adapted to wrap around the edges of the package (e.g., 22). *See e.g.*, Application, paragraphs [0025], [0026], [0028] and [0029]; Fig. 3.

With regard to the aspect of the invention set forth in independent claim 1, discussions of the recited features of claim 1 can be found at least in the below cited locations of the specification and drawings. By way of example, an embodiment in accordance with the present invention relates to a package (e.g., 22). *See e.g.*, Application, paragraph [0005]; Fig. 3. The package (e.g., 22) comprises a flexible substrate (e.g., 12) comprising a polymeric transparent film. . *See e.g.*, Application, paragraphs [0018]-[0019]; Fig. 3. The package (e.g., 22) further comprises an organic electronic device (e.g., 16) coupled to the transparent film. *See e.g.*, Application, paragraph [0023]; Fig. 3. The package (e.g., 22) further comprises a sealant (e.g., 18) coupled to the flexible substrate (e.g., 12) and disposed about the perimeter of the organic electronic device (e.g., 16). *See e.g.*, Application, paragraph [0024]; Fig. 3. The package (e.g., 22) further comprises a superstrate (e.g., 24) coupled directly to the sealant (e.g., 18) and disposed proximate to the organic electronic device (e.g., 16), wherein the superstrate (e.g., 24) comprises at least one layer larger than the flexible substrate (e.g., 12) and a periphery adapted to wrap around the edges of the package (e.g., 22). *See e.g.*, Application, Page 2,

paragraph [0005]. *See e.g.*, Application, paragraphs [0025], [0026], [0028] and [0029]; Fig. 3.

These claims are clearly different and patentably distinction from the prior art, as discussed below.

6. **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

First Ground of Rejection for Review on Appeal:

Appellants respectfully urge the Board to review and reverse the Examiner's first ground of rejection in which the Examiner rejected claims 1-5, 8-10, and 47-50 under 35 U.S.C. § 102 (e) as being anticipated by Padiyath et al. (U.S. Pat. No. 7,018,713).

Second Ground of Rejection for Review on Appeal:

Appellants respectfully urge the Board to review and reverse the Examiner's second ground of rejection in which the Examiner argued in the alternative and in addition to the rejection of claims 6 and 7 under 35 U.S.C. § 103 (a) as being unpatentable over Padiyath et al. in view of Silvernail et al. (U.S. Pat. No. 6,537,688).

7. **ARGUMENT**

As discussed in detail below, the Examiner has improperly rejected the pending claims. Further, the Examiner has misapplied long-standing and binding legal precedents and principles in rejecting the claims under Sections 102 and 103. Accordingly, Appellants respectfully request full and favorable consideration by the Board, as Appellants strongly believe that claims 1-10 and 47-50 are currently in condition for allowance.

A. **First Ground of Rejection:**

The Examiner rejected claims 1-5, 8-10 and 47-50 under 35 U.S.C. § 102(e) as being anticipated by Padiyath et al. (U.S. Pat. No. 7,018,713, hereinafter "Padiyath"). Appellants respectfully traverse this rejection.

1. **Legal Precedent**

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under Section 102, a single reference must teach each and every element or step of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). Thus, if the claims recite even one element not found in the cited reference, the reference does not anticipate the claimed invention.

Further during examination, the claims must be interpreted as broadly as their terms *reasonably* allow. This means that the words of the claims must be give their *plain meaning* unless Appellant has provided a clear definition in the specification. *In re Zletz*, 893 F.2d 319, 321, 13 U.S.P.Q.2d 1320, 1322 (Fed. Cir. 1989); M.P.E.P. § 2111.01. “Words in patent claims are given their ordinary meaning in the usage of the field of the invention, unless the text of the patent makes clear that a word was used with a special meaning.” *In re Sneed*, 710 F.2d 1544, 218 U.S.P.QQ. 385 (Fed. Cir. 1983).

Independent Claims 1 and 47 and Claims Depending Therefrom

Embodiments of the present application relate to providing a hermetically sealed package for organic electronic devices. Application, Page 2, paragraph [0005]. In one embodiment an organic electronic package is provided, wherein the package includes a sealant implemented to couple a superstrate to a flexible substrate, providing a complete enclosure for the organic electronic device. Application, Page 7, paragraph [0024]. As used in the present specification, the “organic electronic device” includes a number of organic semiconductor layers disposed between two conductors or electrodes. Application, Page 7, paragraph [0023]. The specification describes a superstrate as referring to an upper substrate of the organic package. Application, Page 7, paragraph [0025]. In one embodiment, the organic package includes an organic electronic device and a superstrate disposed proximate to the organic electronic device, wherein the superstrate is adapted to wrap around the edges of the package, thereby sealing and protecting the organic electronic device. Application, Page 9, paragraphs [0028] – [0029], Fig. 3.

Accordingly, independent claim 1 recites “[a] package comprising . . . a superstrate coupled directly to the sealant and *disposed proximate to* the organic electronic device, wherein the superstrate comprises a periphery adapted to wrap around the edges of the package.” (Emphasis added). Similarly, independent claim 47 recites “[a] package comprising...a superstrate coupled directly to the sealant and *disposed proximate to* the organic electronic device, wherein the superstrate comprises at least one layer larger than the flexible substrate and a periphery adapted to wrap around the edges of the package.” (Emphasis added). To be clear, each of the independent claims recites a superstrate that is “disposed proximate to” an organic electronic device.

As set forth by binding legal precedent, during examination, the claims *must* be interpreted as broadly as their terms *reasonably* allow. This means that the words of the claims must be given their *plain meaning* unless Applicant has provided a clear definition in the specification. *In re Zletz*, 893 F.2d 319, 321, 13 U.S.P.Q.2d 1320, 1322 (Fed. Cir. 1989); M.P.E.P. § 2111.01. “Words in patent claims are given their ordinary meaning in the usage of the field of the invention, unless the text of the patent makes clear that a word was used with a special meaning.” *In re Sneed*, 710 F.2d 1544, 218 U.S.P.Q. 385 (Fed. Cir. 1983).

As discussed above, embodiments of Appellants invention include a superstrate that is both 1) “coupled directly to” a sealant; and 2) disposed “proximate” to an organic electronic device. As will be appreciated, the plain and ordinary meaning of the term “proximate,” is “close” or “very near.” *See e.g.*, WEBSTER’S NEW UNIVERSAL UNABRIDGED DICTIONARY 1158 (1994); <http://dictionary.reference.com/browse/proximate>. Thus, in accordance with the ordinary meaning of the term, “proximate” refers to something that is near, close or next to. “Proximate” does *not* refer to something that is in contact with or touching something else. Suggestions to the contrary would be inconsistent with the plain and ordinary meaning of the term.

Indeed, Appellants specification clearly supports this plain and ordinary meaning. For example, each figure and corresponding description makes clear that in accordance with embodiments of Appellants’ invention, the superstrate is disposed next to, *but not in contact with*, the organic electronic device. *See e.g.*, Figs. 1, 3, 4 and 7. Accordingly, it is clear from the specification and figures that Appellants are using the term “proximate” in accordance

with its plain and ordinary meaning. That is, the superstrate is disposed “proximate,” (i.e., next to, but not in contact with) the organic electronic device.

The plain meaning of “proximate” is made even more clear through Appellants’ unambiguous and distinguishable usage of the term when compared to terms meaning “in contact with.” For instance, Appellants’ usage of “proximate” to describe a relationship between the superstrate and the organic electronic device is in stark contrast to the recited relationship between the superstrate and the sealant. That is, the claims make it clear that when one element is in contact with another element, it is “coupled to” or “coupled directly to” that element (e.g., “an organic electronic device coupled to the transparent film,” or “a superstrate coupled directly to the sealant”). In stark contrast, when one element is arranged close to, but not in contact with another element, it is “disposed proximate to” that element (e.g., “a superstrate...disposed proximate to the organic electronic device”). Accordingly, it is clear from the plain and ordinary meaning of the terms and as expressly employed in independent claims 1 and 47, and fully supported by Appellants’ specification, that “proximate to” refers to one element that is next to, but not in contact with another element, which is clearly distinct from an element that is “coupled directly to,” and thus in contact with another element. Thus, it is clear that each of the independent claims recites a superstrate that is next to, but not in contact with, an organic electronic device.

In contrast, the Padiyath reference discloses an OLED device 200, wherein a metal foil 250 (asserted to be the recited superstrate) is coupled directly to the cathode 230 of the light emitting structure 220. *See e.g.*, Fig. 4. As a preliminary matter, Appellants note that the organic electronic device of Padiyath is not solely made up of the light emitting layers 220. Those skilled in the art would fully appreciate that to form an “organic electronic device,” the light emitting layers must be sandwiched between two electrodes. Accordingly, any correlation of the structure of Padiyath with Appellants’ recited “organic electronic device” must include not only the light emitting layers 220 of Padiyath, but also the cathode 230 and the ITO anode 210.

With this in mind, it is clear that the Padiyath reference teaches that the asserted superstrate (foil 250) is in direct contact with or *coupled directly to* the cathode 230 of the organic electronic device. Indeed, the Padiyath reference explicitly teaches that “an opening 260 formed in adhesive 240 permits a portion 270 of foil 250 to be deformed into contact

with cathode 230.” Col. 9, lines 13-15. Thus, it cannot be said that the metal foil 250 is “proximate to” the cathode 230. Rather, the metal foil 250 is disposed in direct contact with the cathode 230. Indeed, those skilled in the art would fully appreciate that the electrically conductive nature of the cathode 230 and the metal foil 250 mean that any such direct contact changes the operative nature of the device entirely. As previously asserted, Appellants note that the distinction in the plain language of the independent claims themselves (e.g., the superstrate is both “coupled directly to” a sealant and disposed “proximate” to an organic electronic device) should give clear guidance that the superstrate recited in the present claims cannot be reasonably interpreted as being coupled to or in contact with the organic electronic device. Because the Padiyath reference discloses a superstrate *coupled directly to both* the sealant and the organic electronic device, Appellants respectfully assert that the Padiyath reference cannot possibly disclose the recited elements. That is, the Padiyath reference *does not* disclose “a superstrate *coupled directly to* the sealant and *disposed proximate to* the organic electronic device,” as recited in claims 1 and 47.

Accordingly, Appellants respectfully assert that the Padiyath reference fails to disclose all of the recited features of independent claims 1 and 47, and thus, the Padiyath reference cannot possibly anticipate the recited subject matter. Accordingly, Appellants respectfully request that the Board overturn the rejection of claims 1-5, 8-10 and 47-50, under 35 U.S.C. § 102(e), and provide an indication of allowance for those claims.

B. Second Ground of Rejection:

The Examiner rejected claims 6 and 7 under 35 U.S.C. § 103(a) as being unpatentable over Padiyath in view of Silvernail (US 6,624,568, hereinafter “Silvernail”). Appellants respectfully traverse this rejection.

1. Legal Precedent

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). To establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985).

Dependent Claims 6 and 7

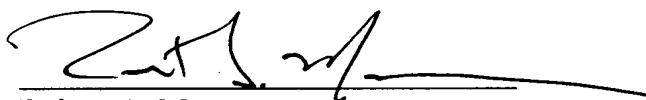
The Examiner rejected dependent claims 6 and 7 as being obvious over Padiyath in view of Silvermail. Claims 6 and 7 depend upon amended claim 1, which, as discussed above, contains elements that are not disclosed by the Padiyath reference. Specifically, the Padiyath reference does not disclose “a superstrate coupled directly to the sealant and *disposed proximate to* the organic electronic device,” The addition of Silvermail does not obviate this deficiency in the Padiyath reference. As a result, the cited references, viewed alone or in combination, do not disclose all elements recited in the present claims and therefore fail to establish a *prima facie* case of obviousness. Accordingly, Appellants respectfully request that the Board overturn the Examiner’s rejections of dependent claims 6 and 7, and provide an indication of allowance for those claims.

Conclusion

Appellants respectfully submit that all pending claims are in condition for allowance. However, if the Examiner or Board wishes to resolve any other issues by way of a telephone conference, the Examiner or Board is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Date: August 9, 2007

Respectfully submitted,



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8. **APPENDIX OF CLAIMS ON APPEAL**

Listing of Claims:

1. A package comprising:
 - a flexible substrate comprising a polymeric transparent film;
 - an organic electronic device coupled to the transparent film;
 - a sealant coupled to the flexible substrate and disposed about the perimeter of the organic electronic device; and
 - a superstrate coupled directly to the sealant and disposed proximate to the organic electronic device, wherein the superstrate comprises a periphery adapted to wrap around the edges of the package.
2. The package, as set forth in claim 1, wherein the flexible substrate comprises a barrier coating.
3. The package, as set forth in claim 1, wherein the flexible substrate is a composite substrate comprising:
 - a first protective layer configured to resist abrasion;
 - a polymeric transparent film coupled to the first protective layer;
 - a barrier coating coupled to the transparent film; and
 - a second protective layer coupled to the barrier coating and configured to protect the transparent film from chemical attack during fabrication.
4. The package, as set forth in claim 1, wherein the flexible substrate is a composite substrate comprising:
 - a first protective layer configured to resist abrasion;
 - a first polymeric transparent film coupled to the first protective layer;
 - a first barrier coating coupled to the first transparent film;
 - a second barrier coating coupled to the first barrier coating via an adhesive layer;
 - a second polymeric transparent film coupled to the second barrier coating; and
 - a second protective layer coupled to the second polymeric transparent film and configured to protect the transparent film from chemical attack during fabrication.

5. The package, as set forth in claim 1, comprising a barrier coating coupled between the flexible substrate and the organic electronic device.

6. The package, as set forth in claim 1, wherein the organic electronic device comprises an organic light emitting diode.

7. The package, as set forth in claim 1, wherein the organic electronic device comprises an organic photovoltaic device.

8. The package, as set forth in claim 1, wherein the sealant comprises an adhesive material having a low permeability.

9. The package, as set forth in claim 1, wherein the sealant comprises a thickness that is greater than a thickness of the organic electronic device.

10. The package, as set forth in claim 1, wherein the superstrate comprises a metal foil.

47. A package comprising:

a flexible substrate comprising a polymeric transparent film;

an organic electronic device coupled to the transparent film;

a sealant coupled to the flexible substrate and disposed about the perimeter of the organic electronic device; and

a superstrate coupled directly to the sealant and disposed proximate to the organic electronic device, wherein the superstrate comprises at least one layer larger than the flexible substrate and a periphery adapted to wrap around the edges of the package.

48. The package, as set forth in claim 47, wherein the flexible substrate is a composite substrate comprising:

a first protective layer configured to resist abrasion;

a polymeric transparent film coupled to the first protective layer;

a barrier coating coupled to the transparent film; and

a second protective layer coupled to the barrier coating and configured to protect the transparent film from chemical attack during fabrication.

49. The package, as set forth in claim 47, wherein the flexible substrate is a composite substrate comprising:

- a first protective layer configured to resist abrasion;
- a first polymeric transparent film coupled to the first protective layer;
- a first barrier coating coupled to the first transparent film;
- a second barrier coating coupled to the first barrier coating via an adhesive layer;
- a second polymeric transparent film coupled to the second barrier coating; and
- a second protective layer coupled to the second polymeric transparent film and configured to protect the transparent film from chemical attack during fabrication.

50. The package, as set forth in claim 47, wherein the superstrate comprises a metal foil.

9. **EVIDENCE APPENDIX**

None

10. **RELATED PROCEEDING APPENDIX**

None